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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/611,392	06/30/2003	Jing Xiang	120-038	1535

34845 7590 08/28/2009

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EXAMINER
PATEL, CHANDRAHAS B

ART UNIT	PAPER NUMBER
2416	

NOTIFICATION DATE	DELIVERY MODE
08/28/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/611,392	XIANG, JING	
	Examiner	Art Unit	
	Chandrahas Patel	2416	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-5,7-9 and 13-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-5, 7-9, 13-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 6/25/2009 have been fully considered but they are not persuasive. Applicant argues that Zavalkovsky does not teach using different size look-back window for different service levels. However examiner disagrees. Zavalkovsky teaches the buffer factor for different services levels are different. These buffer levels are look-back window and the size of the look-back window is different for different type of traffic. Col. 7, lines 49-53 teach each column refers to different service levels which in Zavalkovsky are: Best Effort, Assured Forwarding and Expedited Forwarding. Therefore buffer levels or look-back window and the size of each look-back window for the different type of traffic is different.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 2, 3, 13, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitchin (USPN 7,260,392) in view of Zavalkovsky et al. (USPN 6,839,327).

Regarding claim 2, Kitchin teaches a method for determining whether to discard a received packet at a node **[Col. 3, lines 20-38]** the method including the steps of: establishing a first look-back window of a first size for packets associated with a first service level **[Col. 4, lines 40-46, has separate duplication detection cache for each class]**; establishing a second look-back window of a second size for packets associated with a second service level **[Col. 4, lines 40-46, has separate duplication detection**

cache for each class]; comparing a sequence number associated with a first received packet against sequence numbers associated with a selected number of previously received packets in the first look-back window, the selected number determined by the first size, wherein the first received packet has a quality of service level associated therewith, the wherein the selected number of previously received packets are of the same quality of service level as the first received packet **[Col. 4, lines 32-46 describe maintaining separate duplication cache for each QoS and keeping track of sequence information for each class]**; comparing a sequence number associated with a second received packet against sequence numbers associated with a selected number of previously received packets in the second look-back window, the selected number determined by the second size, wherein the second received packet has a quality of service level associated therewith, the wherein the selected number of previously received packets are of the same quality of service level as the second received packet whereby the selected number of previously received packets examined in the step of comparing differs for at least two quality of service levels **[Col. 3, lines 20-28 describe discarding packets if duplicate packets are received and Col. 4, lines 32-46 describe maintaining separate duplication cache for each QoS and keeping track of sequence information for each class]**; discarding the first received packet in the event of a match between any one of the sequence numbers associated with the previously received packets in the first look-back window and the sequence number associated with the first received packet **[Col. 3, lines 20-28 describe discarding duplicate packets, Col. 4, lines 32-46 describe reordering according to each class**

and maintaining separate duplication cache for each class]; and discarding the second received packet in the event of a match between any one of the sequence numbers associated with the previously received packets in the second look-back window and the sequence number associated with the second received packet, whereby the number of sequence numbers compared with the sequence number of the first received packet differs from the number of sequence numbers compares with the sequence number of the second packet **[Col. 3, lines 20-28 describe discarding duplicate packets, Col. 4, lines 32-46 describe reordering according to each class and maintaining separate duplication cache for each class]**.

However, Kitchin does not teach the first look-back window is different than the second look-back window and the first size is different than the second size and the first service level is different than the second service level.

Zavalkovsky teaches the first look-back window is different than the second look-back window and the first size is different than the second size and the first service level is different than the second service level **[Fig. 2, 226, Buffer factor indicates the percentage of packet that should be stored for different class of packets according to columns 202-208 therefore each class has a different look-back window with regard to how much data is stored for each of the different class]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a different look-back window for different service levels so that appropriate buffer resources can be provided to different service levels of data **[Col. 4, lines 1-18]**.

Regarding claim 3, Kitchin teaches forwarding the received packet for processing in the event that there is no match between any one of the sequence numbers associated with the selected number of previously received packets having the same quality of service as the received packet and the sequence number of the received packet **[Col. 4, lines 40-46]**.

Regarding claim 13, Kitchin teaches an apparatus for discarding redundant packets received at a receiving node **[Col. 3, lines 20-38]**, comprising: a sequence number buffer, for storing sequence numbers associated with packets received at the receiving node, wherein a packet is assigned a sequence number responsive to a quality of service level of the packet and a sequence number of a prior packet having the quality of service level of the packet **[Col. 3, lines 20-28 describe maintaining duplicate detection cache, Col. 4, lines 32-39 has sequence number of each class]**; a first look-back window of a first size for packets associated with a first service level **[Col. 4, lines 40-46, has separate duplication detection cache for each class]**; a second look-back window of a second size for packets associated with a second service level **[Col. 4, lines 40-46, has separate duplication detection cache for each class]**; an anti-replay bitmask table including a first entry associated with the first look-back window and a second entry associated with the second look-back window, each entry associated with a different quality of service level and storing the bitmask of sequence numbers of previously received packets to be compared in determining whether to discard a received packet, wherein a number of sequence numbers of previously received packets that are compared differs for at least two quality of service

levels **[Col. 3, lines 20-28 describe discarding packets if duplicate packets are received, Col. 4, lines 32-46 describe maintaining separate duplication cache for each QoS and keeping track of sequence information for each class]**.

However, Kitchin does not teach the first look-back window is different than the second look-back window and the first size is different than the second size and the first service level is different than the second service level; and the first size is different than the second size.

Zavalkovsky teaches the first look-back window is different than the second look-back window and the first size is different than the second size and the first service level is different than the second service level; and the first size is different than the second size **[Fig. 2, 226, Buffer factor indicates the percentage of packet that should be stored for different class of packets according to columns 202-208 therefore each class has a different look-back window with regard to how much data is stored for each of the different class]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a different look-back window for different service levels so that appropriate buffer resources can be provided to different service levels of data **[Col. 4, lines 1-18]**.

Regarding claim 18, Kitchin teaches an apparatus comprising: means for receiving a plurality of packets having an associated plurality of sequence numbers, wherein each one of the packets in the plurality of packets has a quality of service level associated therewith, and wherein there are at least two types of service levels **[Col. 3,**

lines 20-28 describe having sequence numbers, Col. 4, lines 32-46, the reference states delivering packets to another class indicates there are at least two service levels]; a first look-back window of a first size for packets associated with a first service level **[Col. 4, lines 40-46, has separate duplication detection cache for each class]**; a second look-back window of a second size for packets associated with a second service level **[Col. 4, lines 40-46, has separate duplication detection cache for each class]**; means for comparing, for each received packet, a received sequence number of each received packet against a set of previously received sequence numbers, wherein the set of sequence numbers includes only sequence numbers of packets previously received within a look-back window associated with a quality of service level type corresponding to the quality of service level type of the received packet and wherein a number of previously received sequence number for each set differs for at least two quality of service levels **[Col. 3, lines 20-28 describe discarding packets if duplicate packets are received where packets are compared against the packets in a duplication cache, Col. 4, lines 32-46 describe maintaining separate duplication cache for each QoS and keeping track of sequence information for each class]**; and means for discarding the received packet in the event of a match between the received sequence number and any of the sequence numbers in the set of sequence numbers in the look-back window of the same quality of service level types **[Col. 3, lines 20-28, discards packets if duplicate packets are received, Col. 4, lines 32-46 describe maintaining separate duplication cache for each QoS and keeping track of sequence information for each class]**.

However, Kitchin does not teach the first look-back window is different than the second look-back window and the first size is different than the second size and the first service level is different than the second service level; and the first size is different than the second size.

Zavalkovsky teaches the first look-back window is different than the second look-back window and the first size is different than the second size and the first service level is different than the second service level; and the first size is different than the second size **[Fig. 2, 226, Buffer factor indicates the percentage of packet that should be stored for different class of packets according to columns 202-208 therefore each class has a different look-back window with regard to how much data is stored for each of the different class]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a different look-back window for different service levels so that appropriate buffer resources can be provided to different service levels of data **[Col. 4, lines 1-18]**.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitchin (USPN 7,260,392) in view of Zavalkovsky et al. (USPN 6,839,327) and Nagarajan et al. (USPN 7,099,327).

Regarding claim 4, the references teach a method as discussed in rejection of claim 2.

However, the references do not teach forwarding the received packet for processing if the packet is received a predetermined time after the selected number of previously received packets.

Nagarajan teaches forwarding the received packet for processing if the packet is received a predetermined time after the selected number of previously received packets **[Col. 6, lines 35-46]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to forward the received packets for processing after a selected number of previous packets are received since sequence numbers are allocated using a finite number of bits so they will be repeated after a maximum finite value therefore it must be decided after which sequence number should you stop processing them **[Col. 6, lines 32-35]**.

5. Claim 5, 7-9, 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over by Kitchin (USPN 7,260,392) in view of Zavalkovsky et al. (USPN 6,839,327) and Zdan (USPN 7,020,143).

Regarding claim 5, the references teach a method as discussed in rejection of claim 2.

However, the references do not teach determining service level in response to differentiated services codepoint (DSCP) associated with the packet.

Zdan teaches determining service level in response to a DSCP associated with the packet **[Col. 5, lines 46-57]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to determine service level in response to DSCP associated with the packet so that QoS can be implemented without the need for per-flow signaling and state maintenance in each traversed node **[Col. 5, lines 53-57]**.

Regarding claims 7 and 14, the references teach a method as discussed in rejection of claim 3 and an apparatus as discussed in rejection claim 13.

However, the references do not teach at least one of the service levels corresponds to an Expedited Forwarding (EP) per hop behavior.

Zdan teaches at least one of the service levels corresponds to an EP behavior **[Col. 5, lines 66-67 – Col. 6, line 1]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least one of the service level to correspond to an EP behavior since it's a currently defined standard PHB group **[Col. 5, lines 66-67 – Col. 6, line 1]**.

Regarding claims 8 and 15, the references teach a method as discussed in rejection of claim 3 and an apparatus as discussed in rejection claim 13.

However, the references do not teach at least one of the service levels corresponds to an Assured Forwarding (AF) per hop behavior.

Zdan teaches at least one of the service levels corresponds to an AF behavior **[Col. 5, lines 66-67 – Col. 6, line 1]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least one of the service level to correspond to an AF

behavior since it's a currently defined standard PHB group **[Col. 5, lines 66-67 – Col. 6, line 1]**.

Regarding claims 9 and 16, the references teach a method as discussed in rejection of claim 3 and an apparatus as discussed in rejection claim 13.

However, the references do not teach at least one of the service levels corresponds to a Best Efforts (BE) per hop behavior.

Zdan teaches at least one of the service levels corresponds to a BE behavior **[Col. 5, lines 66-67 – Col. 6, line 1]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least one of the service level to correspond to a BE behavior since it's a currently defined standard PHB group **[Col. 5, lines 66-67 – Col. 6, line 1]**.

6. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitchin (USPN 7,260,392) in view of Zavalkovsky et al. (USPN 6,839,327) and Koodli et al. (USPN 7,000,120, Herein as Koodli).

Regarding claim 17, the references teach an apparatus as discussed in rejection of claim 13.

However, the references do not teach the apparatus operates according to an IPsec protocol.

Koodli teaches that apparatus operates according to an IPsec protocol **[Col. 4, lines 24-26]**.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the apparatus that operates according to an IPsec protocol since IPsec provides various security services for traffic at IP layer **[Col. 1, lines 29-31]**.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chandrahas Patel whose telephone number is (571)270-1211. The examiner can normally be reached on Monday through Thursday 7:30 to 17:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 571-272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ricky Ngo/
Supervisory Patent Examiner, Art Unit 2416

/Chandrahas Patel/
Examiner, Art Unit 2416